

Sub A2 } ABSTRACT

A transmitting and receiving apparatus has:  
modulating circuit for modulating an input digital data; first  
frequency converting circuit for converting a signal output  
from said modulating circuit into a signal of a predetermined  
frequency; amplifying/branching circuit for amplifying and  
branching a signal output from said first frequency converting  
circuit; second frequency converting circuit for converting  
a signal output from said amplifying/branching circuit, into  
a signal of a predetermined frequency; and demodulating means  
for demodulating a digital data from a signal output from  
said second frequency converting circuit, wherein

each of said first and second frequency converting  
circuit comprises a PLL frequency synthesizer,

said demodulating means has a carrier recovery section,  
and

natural angular frequencies of said PLL frequency  
synthesizers are set to be equal to a maximum frequency of  
mechanical vibrations which are externally applied, or in  
a predetermined width above and below the maximum frequency,  
or

a loop filter bandwidth of said carrier recovery  
section is set to be higher by a predetermined amount than  
the maximum frequency of mechanical vibrations which are  
externally applied.